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Fiscal Policy and Private Investment in Developing Countries

Recent Evidence on Key Selected Issues

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and
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The key to sustained recovery in developing countries is the revival of private investment. This revival requires a coordinated set of credible policies — fiscal, exchange rate, tax, and public expenditure restructuring. In several countries the debt overhang is also an obstacle to achieving that credibility.

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This paper — a product of the Development Economics Vice Presidency — is part of a larger effort in PRE to understand the determinants of private investment. This paper is to be published in *Ricerche Economiche*. Copies are available free from the World Bank, 1818 H Street NW, Washington DC 20433. Please contact Dhomun Bilkiss, room S9-041, extension 33768 (44 pages).

The importance of private domestic investment in growth and development strategies is important in the transition to the 1990s. In most developing countries in the 1980s, domestic investment bore the brunt of the total contraction in demand associated with external adjustment.

Increasingly there is agreement about the desirability of increasing the private sector's share in total capital formation by relying more on market forces and incentives. It is now widely accepted that expansion of private investment should be the main impetus for economic growth, and that public investment resources should gradually focus on social areas, including the alleviation of poverty and the upgrading of social capital and services. Investment opportunities have improved in the industrial countries so it is foolish to assume any favorable response by foreign investors to investments in developing countries without a strong commitment by indigenous private investors.

Chhibber and Dailami investigate several questions in connection with fiscal policy, its connections with the pace of private domestic investment and its role in the adjustment programs of developing countries: How do choices between alternative sources of deficit financing affect private investment? How does private investment in developing countries respond, for instance, to devaluation of the exchange rate? To what extent does public investment complement private investment and to what extent does it crowd it out in the competition for resources? How does the size of the fiscal deficit and alternative ways of financing it affect private investment? How do these options affect the real interest rate, credit allocation, and the real exchange rate, and how do those variables affect private investment? How does public spending affect private investment decisions? What effect does inflation have when there is no fully indexed tax system?

Chhibber and Dailami conclude that most developing countries have restricted access to foreign financing so there is direct competition between the public and private sectors for limited financial resources. Big fiscal deficits preempt funds and restrict private investors' access to them. But spending cuts must be structured to protect and even expand public investments that help private sector investment and — more important — to avoid physically crowding private firms out from product and factor markets.

With reduced fiscal deficits and financial liberalization, market forces will play more of a role in the volume and allocation of private investment. Tax policy will be increasingly important in influencing market investment decisions. This requires a better understanding of various institutional, financial, and tax factors that have led to so much corporate indebtedness in developing countries.

Chhibber and Dailami highlight the main elements of these factors that must be incorporated in determening the cost of capital to firms and the after-tax rate of return to investors.

FISCAL POLICY AND PRIVATE INVESTMENT IN DEVELOPING COUNTRIES: Recent Evidence on Key Selected Issues

by Ajay Chhibber and Mansoor Dailami

1. INTRODUCTION

The importance of private domestic investment to the growth and development strategy of developing countries in the transition to the 1990s is emerging with particular clarity from the convergence of two strands of empirical and policy concerns. One is the evidence that in almost all these countries, over the past decade, domestic investment has borne the brunt of the aggregate demand contraction associated with the process of external adjustment. (Figure 1 and Table 1) The second, which derives partly from the first, is the growing agreement on the desirability of increasing the private sector's share in total capital formation through increased reliance on market forces and incentives. Accordingly, it is now widely accepted that expansion of private investment should be the main impetus for economic growth, allowing public investment resources gradually to focus on social areas, including alleviation of poverty and the upgrading of social capital and services.

The logic of this new strategy is straightforward: enduring adjustment to the changed global environment of the 1980s can take place only through a balanced and vigorous resumption of private investment that leads to higher efficiency of resource use and serves as a positive signal to foreign investors. Private domestic investment in developing countries needs to be seen not only as a contributor to economic growth and employment generation, but also as a catalyst to attract foreign direct capital. It seems reasonable to argue that the opportunity cost of investing in developing countries has increased because of improved investment opportunities in the industrial countries in response to increases in business profitability and to the momentum created by the move

Figure 1

Figure 1.a

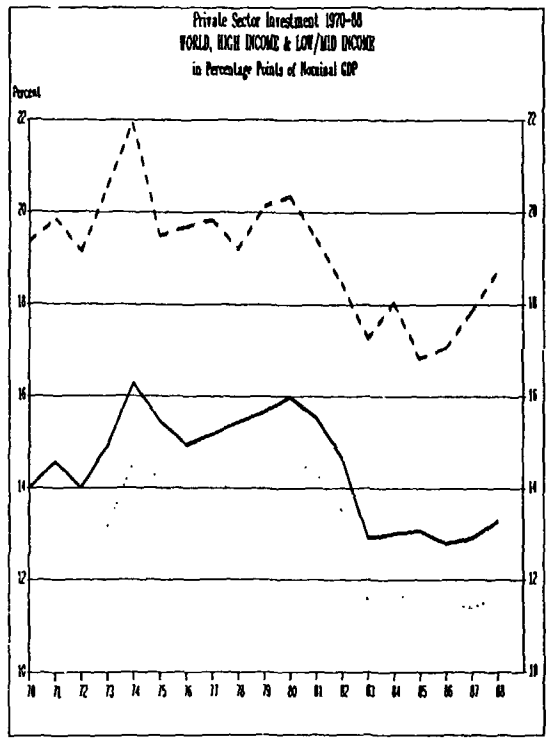
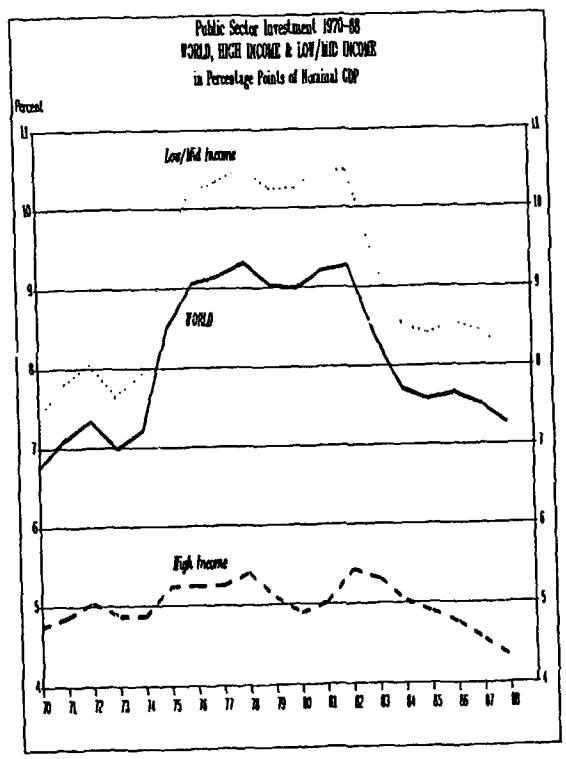


Figure 1.b



Source: World Bank, International Economics Department.

Table 1: Public and Private Investment for a Group of 29 Developing Countries, 1970-88
(percentage of GDP at current prices)

Group	1970-80	1981-82	1983-84	1985-88
29 Countries				
Total	20.3	22.2	18.8	17.6
Private	12.2	11.7	9.7	9.6
Public	8.2	10.5	9.0	8.0
13 Highly indebted countries				
Total	20.1	20.2	15.1	15.2
Private	12.3	10.9	8.1	8.7
Public	7.8	9.2	7.0	6.5

Sample: Argentina*, Bangladesh, Bolivia*, Brazil*, Chile*, Colombia*, Costa Rica*, Ecuador*, Guatemala, Hungary, India, Indonesia, Kenya, Korea, Malaysia, Mexico*, Nigeria*, Pakistan, Peru*, Philippines*, Portugal, Sri Lanka, Thailand, Tunisia, Turkey, Uruguay*, Venezuela, Zambia, Zimbabwe.

* Highly Indebted Countries.

Source: Serven and Solimano (1990).

toward a united Europe and the liberalization of Eastern European economies. In the absence of a strong commitment by indigenous private investors, it would seem foolishly optimistic to assume any favorable response by foreign investors.

Within this overall perspective, three sets of questions about the pace of private domestic investment, its prospects for recovery, and its role in adjustment programs of developing countries, emerge as a chief concern of fiscal policy, both a' the national and international level. First is the relationship between stabilization measures affected through aggregate demand management and the need for investment recovery. To the extent that control of aggregate demand for stabilization purposes entails in most developing countries reliance on

exchange rate devaluation, higher domestic interest rates, and a mix of fiscal and credit contraction, the responsiveness of private investment to such policy changes assumes considerable importance. How do choices between alternate sources of deficit financing affect private investment? How does private investment in developing countries respond, for instance, to a devaluation of the exchange rate? There are clearly both short-run and long-run effects, and these effects could operate in opposite directions.

Besides these intertemporal trade-offs inherent in investment responses to exchange rate and interest rate changes, there are the important considerations of policy credibility, and governments' commitment to a path of prudent and stable policy that bear strongly on businesses' investment decisions. A firm commitment to stabilization measures and policy reform, even at some short-term costs of lost output, is likely to be more critical in influencing long-term investment decisions than policy fluctuations and stop-go strategies. There is now discernible evidence that countries which have demonstrated their willingness and ability to stay the course have begun to show resumption in growth. However, the debt overhang remains a shroud and a reminder of past mistakes clouding future recovery in many countries.

The second aspect of the relationship between fiscal policy and private investment relates to the complementarity or competitiveness of private and public investment. To the extent that public investment expenditures result in the provision of public services which reduce the cost of production of the private sector, they have a positive effect on private profitability and investment. Higher aggregate public investment expenditures can also raise demand and increase capacity utilization in the private sector. On the negative side, public investment expenditures can crowd out the private sector in input

and product markets, or in financial markets. Given the relatively high dependence of business enterprises in developing countries on debt capital, particularly bank loans to finance their investment and growth, the specter of "financial crowding out" is rather serious. Private sector companies are prone to face much more stringent credit supply constraints from the banking sector than their public sector counterparts. Besides, private companies are also excluded from the resources of non-banking financial institutions, such as insurance and pension fund companies. Access to these resources are reserved exclusively for public sector companies and often at subsidized rates.

The third question relating to the relationship between fiscal policy and private investment concerns the role of capital income taxation as a tool in influencing investment incentives. Dependence on tax policy to influence investment spending has been a permanent feature of public policy in the market economy of the industrial countries, but has not figured prominently in developing countries' programs of investment control. The reasons for such a reluctance on the part of policymakers in developing countries to rely on tax policy are not difficult to find. First is the combination of institutional and conceptual factors, including the sheer weight of the government sector itself in the process of capital formation, the close budgetary link between the central government and public enterprise companies, the weakness in the accounting, enforcement and administrative procedures. Second is the complexity of measuring capital income, particularly in inflationary environments. Nevertheless, the shift in economic strategy from the past method of direct government intervention to a new strategy, dependent on policy-induced incentives, is currently a focus of liberalization and privatization measures underway in developing countries.

A well-designed corporate tax system is an integral ingredient of such a new strategy.

Analysis of private investment behavior is difficult and controversial, even in the context of developed countries with more stable institutions and policy regimes. The controversy among various approaches to the determinants of private investment in industrial countries, which has persisted in the economic literature over the past fifty years, is one manifestation of the intractability of assessing how investors respond to changes in the underlying economic and financial environment [see for instance, Abel (1980) and Shapiro (1986) for further discussion]. In the last decade, however, there has been much work on the determinants of private investment in developing countries. This paper addresses the questions outlined above and surveys the recent theoretical as well as empirical literature on these three key issues. In doing so, the paper hopes to assess the role of private investment in current debate on adjustment and growth strategies in developing countries.

The remainder of the paper proceeds as follows. Section 2 examines the effect of the size of the fiscal deficit and alternative sources of financing the budget deficit on private investment. The key issues here are how these options affect the real interest rate, credit allocation and the real exchange rate and how those variables in turn affect private investment? In Section 3 we turn to the impact of public expenditure decisions on private investment. In particular we look at different types of public investment choices and their impact on private investment and survey both the theoretical as well as empirical literature on the subject. In Sections 4 and 5 we examine the implications of tax policy for private investment decisions. Section 4 examines the effect of tax policy on private investment in the presence of capital market imperfections

whereas Section 5 discusses the impact of inflation in the absence of a fully indexed tax system. The final section provides some concluding thoughts.

2. FISCAL DEFICITS, STABILIZATION AND PRIVATE INVESTMENT

The relationship between fiscal deficits and private investments must be examined in a macroeconomic framework. In order to place this section in a coherent context we begin in Section 2.1 by asking how fiscal policy affects real interest rates and credit allocation which affect private investment. We then turn in Section 2.2 to the econometric evidence on the relationship between real interest rate/credit allocation,[1] and private investment. In Section 2.3 we examine the nature of fiscal adjustment in the 1980s and how it affected private investment. In Section 2.4 we analyze the links from fiscal deficit to private investment through the real exchange rate.

2.1 Fiscal Deficits, Interest Rates and Credit Allocation[2]

The impact of fiscal deficits on private investment is best understood by beginning with the familiar national income identity:

$$\underset{\text{fiscal deficit}}{G - T} = \underset{\text{net private savings}}{(Sp - Ip)} + \underset{\text{foreign savings}}{(M - X)} \qquad (1)$$

At a very simple level, one can see that an increase in the fiscal deficit (G - T) without recourse to increased foreign borrowing (M - X) must imply an increase in net private savings -- an increase in private savings or a decline in private investment or a combination. How much of the adjustment is borne by private investment depends on how fiscal deficits affect the cost and

availability of credit. It is necessary to distinguish between economies in which interest rates are uncontrolled versus those where credit is allocated by non-price mechanisms.

If interest rates are controlled and credit is allocated, there is a one-to-one negative correspondence between higher credit to the public sector to finance the fiscal deficit and reduced credit for the private sector. If instead the government increases expenditure and resorts to monetary financing, the story is a little more complicated. Monetary financing leads to a rise in the rate of inflation. Since nominal interest rates are fixed, real interest rates fall. If private savings fall as a result of lower real interest rates,[3] the availability of loanable funds to the private sector declines even further. The credit squeeze on the private sector is to that extent greater. A further complication is introduced by the possibility of the Tanzi-effect (Tanzi, 1977) with a reduction in tax revenues due to higher inflation, leading to larger deficit financing requirements. In any case, irrespective of the financing option chosen a higher fiscal deficit with repressed financial markets will lead to a reduction in credit to the private sector.

When interest rates are market determined, the effects are somewhat different. If the financing is done through domestic borrowing either through the commercial banks or through direct borrowing from the non-bank private sector interest rates rise.[4] This will also involve the complication of increasing government interest payments on short-term debt held by the government. On the positive side, with higher real interst rates, the demand for money rises so that the same level of inflation tax revenue is available at a lower inflation rate. If higher interest rates lead to more private savings the extent of the increase in interest rates is contained to some extent.

Recourse to monetary financing instead of domestic borrowing, with uncontrolled interest rates raises both the rate of inflation and the real interest rate. The real interest rate rises because the higher inflation rate raises the tax on financial intermediation through the reserve requirement. So irrespective of the method of financing a larger fiscal deficit with uncontrolled interest rates will always lead to higher real interest rates.

Let us turn next to the empirical evidence in developing countries on the effects of real interest rates and credit allocation on private investment.

2.2 Real Interest Rates, Credit Allocation and Private Investment

The underlying logic of a negative relationship between real interest rates and private investment is fairly well established. However, until recently, most empirical studies of private investment did not show direct evidence of this relationship. Instead, these studies reflected underlying conditions of credit and interest rate regulations in financial markets in developing countries. With controlled interest rates and financial repression the availability of credit becomes the relevant constraining variables.[5] Accordingly several empirical studies have established a significant positive relationship between the availability of credit to the private sector and private investment.

Blejer and Khan (1984) using data for 24 developing countries have shown a positive significant relationship between the change in real bank credit and real net private capital flows to the private sector and private investment. Fry (1980) using data over 61 countries for the period 1961-75 also finds somewhat similar results. More recently Sharrif (1990) has shown a significant positive relationship between credit to the private sector and private investment.[6] At

a micro-level Tybout (1984), using data on manufacturing firms in Colombia from the annual census of manufacturing for the years 1973-76 establishes the fact that investor behavior differs substantially across credit access groups. These studies establish a fairly robust conclusion that during financial repression the availability of credit allocation to the private sector had a significant effect on private investment.[7]

More recent evidence using data from countries which have undergone financial liberalization shows that the real cost of credit, rather than the quantity of credit is a significant explanatory variable. Using Indonesian data for the period 1970-88 [Chhibber and Shafik (1990)] show a very significant negative relationship. In the case of Mexico also van Wijnbergen (1989) using time series data from 1970-88 shows a significant negative relationship between real lending rates and private investment. Greene and Villanueva (1990) using cross-country data over 23 developing countries for the period 1975-87 also find significant negative effects of real interest rates on private investment rates.

In some studies both the quantity and the cost of credit have been included in the estimation of private investment. One could argue for the inclusion of both a real interest rate (appropriately defined) and a credit allocation term in the private investment equation for several reasons. First, a number of economies are undergoing financial liberalization and decontrol of interest rates. So there is a regime shift with a part of the data from a period of financial repression and the remainder after liberalization. Second, during periods of financial repression commercial banks cannot change interest rates. However, they can alter the real effective lending rate through various mechanisms such as compensating balances.[8] It is these rates that should be included in empirical estimation. Third, even after interest rates have been

decontrolled commercial banks may not be able to distinguish between low and high risk borrowers. As a result some borrowers are likely to be rationed [Stiglitz and Weiss (1981)] and Blinder and Stiglitz (1983)]. The rationing increases when high fiscal deficits impose heavy borrowing requirements on financial markets.

An interesting case is that of Turkey, where financial markets were liberalized in 1983. In analyzing the Turkish private investment behavior using data for 1970-87 Chhibber and van Wijnbergen (1989) allow for these effects by including both a private credit and a real lending rate variable in a private investment function. The real effective lending rate in their study includes the cost of compensating balances to the borrower.[9] Moreover, post-financial liberalization Turkey was characterized by persistently heavy public sector borrowing in domestic financial markets, high real interest rates and threatened bankruptcies. These were conditions under which the Blinder and Stiglitz model of credit rationing would hold even though interest rates had been decontrolled. In their study both the quantity of credit to the private sector and real effective lending had a significant effect on private investment.

The outcome of this empirical survey is that both the costs of credit as well as the quantity affect private investment in developing countries. Their relative importance varies, depending on the degree of financial liberalization. In economies with repressed financial systems it is the quantity of credit that affects private investment whereas in economies where financial markets have been deregulated the real lending rate is the relevant variable. Let us now relate this to fiscal policy and to the nature and extent of fiscal adjustment that took place in the 1980s.

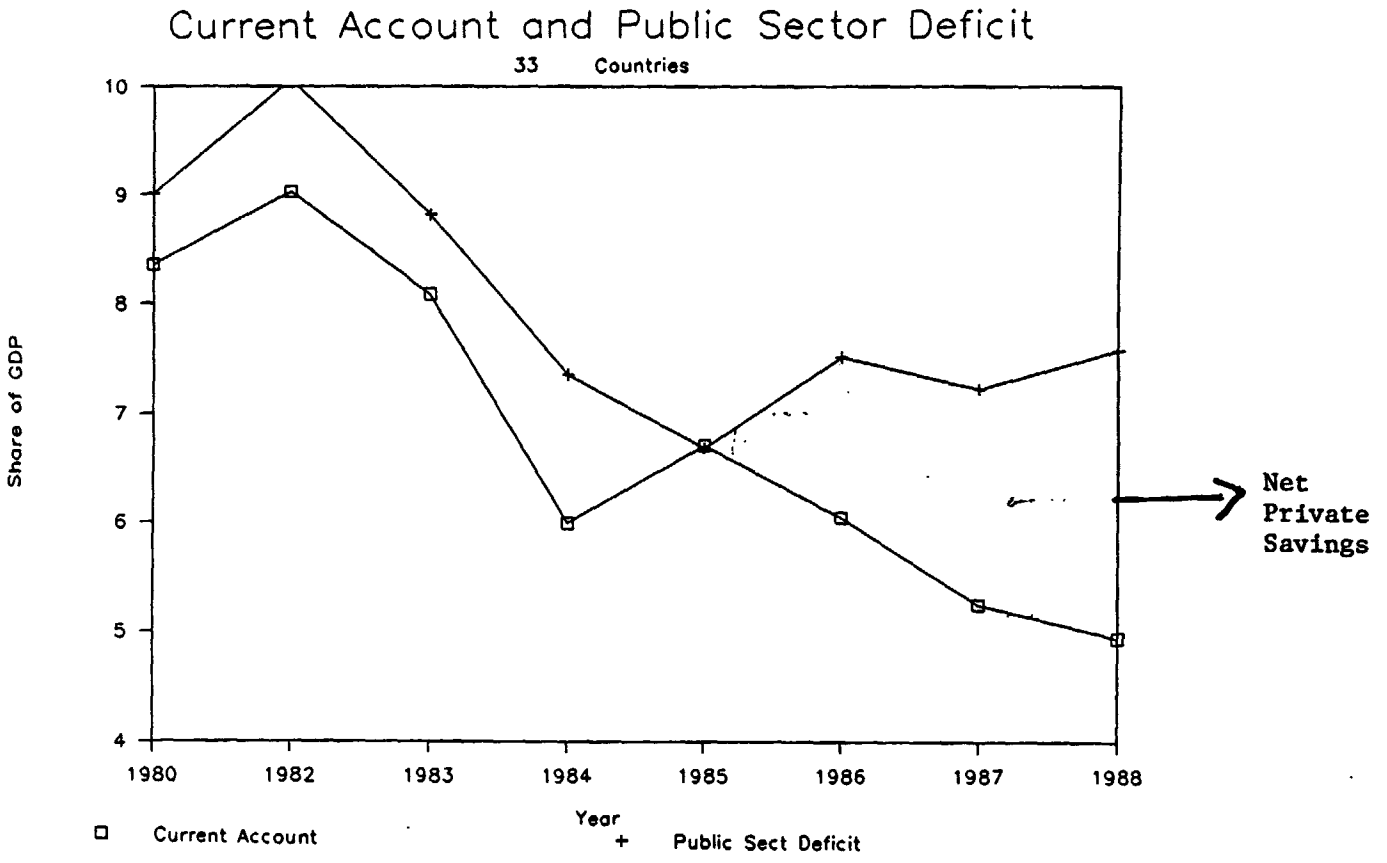
2.3 Fiscal Adjustment in the 1980s and Private Investment

In Section 2.1 we established that domestic financing of the deficit imposed constraints on the availability/cost of credit to the private sector irrespective of the degree of financial liberalization, and irrespective of whether the financing option was borrowing or money creation. Section 2.2 showed the significance of credit to the private sector as a determinant of private investment. In this section we ask what the experience was in the 1980s. Can we attribute some of the decline in private investment to persistently high fiscal deficits?

Figure 2 presents evidence on the extent of adjustment in the fiscal deficit and the current account in 33 developing countries during the period 1980-88. The shaded gap shows the net private savings requirements of the private sector (or roughly the domestic financing of the public sector),[10] resulting in reduced availability of credit to the private sector. The stylised facts that emerge from this evidence are that `during the 1980s fiscal deficits did not match the cuts in the current account deficit. Countries were forced to cut the current account deficit because foreign financing was unavailable. However, a large number of countries were unable to bring about the same degree of cuts in the fiscal deficit. As a result, a larger proportion of the fiscal deficit was financed domestically; either through borrowing or money creation. We saw from earlier sections that in either case the final outcome of higher domestic financing would have implied reduced availability of credit to the private sector.

This story is corroborated by looking at the consolidated financial accounts. These accounts show the growth of real domestic credit by country classified by the public and the private sector and supports the central role of

Figure 2


Current Account and Public Sector Deficit
33 Countries
Share of GDP
10
9
8
7
6
5
4
1980
1982
1983
1984
1985
1986
1987
1988
Year
Current Account
Public Sect Deficit
Net Private Savings

excessive fiscal deficits precipitating a crisis in many countries and sustaining it. Chhibber and Khalilzadeh-Shirazi (1988) and Easterly (1989) show evidence that countries such as Korea, Indonesia, Colombia, Thailand and Turkey which keptfiscal deficits in check, and curtailed the flow of credit to the public sector and to public enterprises did not get into difficulties. These countries were also able to continue positive and uninterrupted flow of credit to the private sector. This was crucial in maintaining private investment and growth. On the other hand in the so-called crises countries there were negative net flows of credit from the financial system to the private sector. These were countries where private investment fell sharply.[11]

2.4 Fiscal Deficits, Exchange Rates and Private Investment

The effect of fiscal deficits through financial markets on private investment tells only one part of the story, albeit a very important one. A related effect which we ignored in the previous section is the effect through exchange rates. We take up this issue here briefly. The central link is that high fiscal deficits and an appreciated exchange rate can be maintained as long as foreign financing is available. However, once foreign financing is curtailed there is pressure to devalue. Acceleration of inflation leads to an appreciation of the real exchange rate. External balance is maintained through import controls and/or exchange controls. Export industries are adversely affected and import competing industries are protected. At some stage the government is forced to devalue.

A devaluation affects private investment through several channels.[12] Firstly, a devaluation alters t'.e real supply price of capital goods. Secondly, it affects the real price of imported inputs which are used in conjunction with

capital goods to produce output. Thirdly, a devaluation has an impact on the real product wage and thereby affects profitability and investment. Fourthly, a devaluation produces changes in real income which affects the demand for domestically produced goods. Finally, a devaluation affects nominal and real interest rates which in turn have an impact on investment. The net effect of devaluation on investment will therefore be a composite of several factors and is theoretically indeterminate.

The short and long run effects of a devaluation on private investment can go in opposing directions. Even if the short run effects are negative because of increases in the real cost of imported capital and inputs, the long run effects may still be positive. The increase in exports and growth due to devaluation could result in higher private investment. Therefore, the information on the short versus long run effects of a devaluation is critical in the design of fiscal stabilization programs and in particular in assessing the size of external assistance required for their successful implementation. The short run negative effects appear largely due to the contractionary demand effect of a devaluation and to the higher costs of imported inputs into production. [13] However, as the economy responds through higher exports to increased competitiveness, the long run effects on private investment can be significantly favorable.

It is necessary to view the effect of devaluation on private investment in a macroeconomic context. If a devaluation is to achieve its primary objective of improving the trade imbalance then, for a <u>given</u> level of output, domestic demand must fall:

$$Y = Cp + Ip + Cg + Ig + (X - M). \qquad (2)$$

For fixed output levels (Y) an increase in private investment (Ip) is possible only if public expenditures (Cg - Ig) fall by more than the improvement in the trade imbalance (X-M).[14] If aggregate output falls, the short run effect on private investment is likely to be negative. On the other hand, if the effect on output of a devaluation is positive due to a strong and rapid response from the tradable goods sectors, these negative effects can be avoided. Even if these positive effects are not large enough in the short run because of a weak supply response, the long-run effects need not be. How quickly would a turn-around take place and under what conditions would it come about? These would naturally vary from one country to another. Two recent papers by Solimano (1990) and by Chhibber and Shafik (1990) address this issue. Both papers show that the long-run benefits of devaluation far outweigh the short-run contractionary costs.

The paper by Solimano (1990) on Chile uses a three-equation model to simultaneously determine the level of private investment, the profitability of investment (measured by Tobin's q) and the level of output. The real exchange rate affects the level of profitability as well as the level of output which is demand determined. Real private investment fell sharply in Chile in 1982-83 and took about 4 years to recover. The large devaluation in 1982-84 hurt the profitability of investment through an increase in the replacement price of capital. But over time the profitability of the expanding export and import competing sectors led to a revival of private investment. The simulations presented in the Solimano paper show that the short-run effect of devaluation on private investment is negative whereas the medium-term effect is positive. Solimano also shows that uncertainty matters in investment decisions, but uncertainty from exchange rate variability does not affect investment. Instead

higher uncertainty due to output variability leads to delay investment decisions given the irreversibility of capital outlays.

Chhibber and Shafik (1990) address the same set of issues for Indonesia with a larger macroeconomic model of the economy. Their model allows for endogenous determination of investment, consumption, the real exchange rate, real interest rates and real output. The real exchange rate has a negative short-run effect on private investment through the replacement cost of capital as well as the cost of imported inputs. The deviation of the real exchange rate from its equilibrium level affects the level of the real interest rate in the economy. The domestic real interest equals the foreign interest rate plus expectations on a real depreciation. A delay in adjusting the exchange rates to its equilibrium level leads to expectations of a devaluation, capital flight and a rise in domestic interest rates. The actual devaluation of exchange rates lowers these expectations and reduces real interest rates.

Changes in the real exchange rate have a positive impact on exports demand in the model. The model is used to examine the impact of a slower devaluation in Indonesia. The results show that with a slower devaluation, private investment would have been higher in the short run but lower in the medium term. An overvalued exchange rate is beneficial only in the short run. The lower growth of exports due to the overvaluation, lowers overall growth and reduces investment in the longer run.

How long is the long-run, i.e., how long does it take for devaluation to produce a positive impact on private investment? In Chile the turn-around took about 5 years whereas in Indonesia it took about 3 years. In both cases, there are short-run to medium-run costs of devaluation which had to be borne in order to reap the longer-run benefits. It is interesting to speculate on why the

turn-around came much sooner in Indonesia, in comparison to Chile. Both countries undertook fairly swift and drastic stabilization and adjustment policies. One major difference, was the much higher debt overhang in Chile. This interpretation is consistent with Faini and de Melo (1990) who show for a cross-section of countries that the resumption of private investment has been hampered by countries debt service burden.

The empirical evidence from Chile and Indonesia suggest that a part of decline in private investment is due to the transitional costs of adjusting to changed relative prices. Capital is not easily mobile between sectors and the shift takes place gradually through depreciation of capital in older/protected industries and new investments in export-oriented industries.

3. FISCAL RETRENCHMENTS, PUBLIC INVESTMENT PRIORITIES AND PRIVATE INVESTMENT

The relationship between public and private investment is often posed as competitive or adversarial. This masks considerably the complexity in the interactions between public capital formation and the profitability of the private sector. At a minimum, it is necessary to distinguish within public investments between those broadly classified as infrastructure and those classified as non-infrastructure activities. The former, leaving aside for the moment how it is financed, is likely to be more complementary than competitive with private sector profitability. What matters, is not just the size of the public sector, but how effectively it delivers services to the private sector.[15]

Section 2 posed the relationship between the overall size of the fiscal deficit and private investment. In this section we ask whether the way in which

public expenditure are cut is important? Are there certain types of public expenditures which are complementary to private investment and should be protected? First, we look at the theoretical literature and then turn to the empirical evidence in developing countries.

The issue at hand is whether investments in projects that provide externalities to the private sector should be accorded a lower social discount rate. Ogura and Yohe (1977) distinguish between three types of public expenditure:

(a) those that provide direct consumption benefits to the private sector.

(b) those that provide services that are direct substitutes for goods and services provided by the private sector.

(c) those that are complementary to private investment.

They argue that category (a) should be discounted at the social rate of time preference; category (b) by the marginal rate of productivity of capital to the private sector and category (c) should be discounted at a rate lower than either (a) or (c). On the other hand, Harberger (1972) and Sandmo and Dreze (1971) argue that the social discount rate is unique and common to all projects. It measures the cost to the economy when resources are withdrawn from the private sector by the public. This unique social rate of discount should be a weighted average of the marginal rate of productivity of capital in the private sector and the social rate of time preference. Therefore public projects that have positive externalities should incorporate these into the benefit stream in the course of project evaluation instead of using different discount rates for different types of projects. Whichever option is chosen the externalities from public investment in projects that are complementary to private investment should matter.

Typically, the marginal productivity of private capital will be greater than the social rate of time preference. This suggests that in the Ogura-Yohe classification the expenditure cutting priorities should be to first cut (b) those public investments that provide services that are direct substitutes for goods and services provided by the private sector before cutting category (a) or (c). With this analytical background, let us now turn to the empirical literature in developing countries to see what the evidence indicates.[16] We concentrate on the few studies that show positive complementarity between public investment and private investment.

3.1 Empirical Evidence of Complementarity

In a detailed study of the Nigerian manufacturing industry, Lee (1989), has shown how the breakdown of social infrastructure has forced private companies in Nigeria to acquire costly generators. The study shows that there are clear economies of scale in the provision of utilities, communications and social services from which private producers derive enormous benefits. Their non-availability due to forced reductions in public investment impose heavy costs, and shift resources away from productive private investment. Studies in the agricultural sector also find strong evidence of a very sizeable and significant impact of public investment in irrigation on private sector output response (Chhibber, 1988, Binswanger, 1988).

The study by Blejer and Khan (1984) is the most comprehensive attempt at understanding the impact of different types of public investment on private investment. This study confirms the hypothesis that infrastructural investment has a positive effect on private investment whereas non-infrastructural investment has a negative impact. The results of this study are not conclusive

because in the absence of a detailed breakdown of public investment, the authors use proxies for investment in infrastructure. Blejer and Khan use two different proxies for infrastructure investment: (1) a proxy based on the premise that infrastructure investments have a long gestation period and therefore the trend level of total public investment can represent infrastructure; and (2) a proxy that posits that because of its long-term nature, infrastructure investment is more likely to be anticipated. However, infrastructure investment is usually very lumpy. Therefore, the measure based on the trend level of investment may be reflecting other types of investment spending that are fairly stable over time. Similarly, expenditure on infrastructure is often unexpected since it can, by its nature, be postponed if neglect or deterioration is tolerable. Also, because investment in infrastructure in developing countries is often associated with borrowed resources from banks or donors, there is likely to be even greater uncertainty in formulating expectations about future outlays.[17]

A more direct examination of this issue is provided in a paper on Turkey by Chhibber and van Wijnbergen (1990). This study finds strong evidence that non-infrastructural public investment hurts private investment but no strong evidence to support the positive impact of public infrastructure investment on private investment.[18] These results support the decision of the Turkish authorities to restructure public investment away from manufacturing and mining. The study by Shafik (1990) for Egypt, finds strong evidence to support the positive impact of public infrastructural investment on private investment. The rebuilding of Egyptian infrastructure in the late 1970s and early 1980s, which had deteriorated sharply in the late 1960s and early 1970s, provided support for the recovery in private investment. Shafik, surprisingly, finds no evidence of financial crowding out of private investment.

The evidence in these studies, though by no means conclusive, supports the restructuring of public investment that is occurring in a number of developing countries. The objective of this shift is to protect a set of "core investments" -- power, transport, telecommunications, hospitals, and schools. Meanwhile, public investments in manufacturing and mining enterprises are curtailed and in many cases being supplanted by private activity. In some cases, e.g., in Ghana and Nigeria, the cuts in public investment had gone so far that they begin to hurt the "core" sectors. These need to be restored in order to take advantage of the complementarity between public and private capital formation. In sum, the lessons of the recent past have shown that the composition of fiscal expenditure cuts makes a difference to the behavior of private investors.

4. TAX POLICY, CAPITAL MARKETS AND PRIVATE INVESTMENT

Reliance on tax policy to influence business investment spending has been a permanent feature of public policy in the market economy of the industrial countries in postwar era. In the United States, for instance, there have been important tax changes in 1954, 1962, 1964, 1981 and 1986, all of which contained provisions for investment recovery.[19] Similarly, in the United Kingdom, the tax reforms of 1950, 1952, 1958, 1964, 1965, and 1975 have entailed important revisions with regard to tax treatment of capital income, depreciation allowances, and tax credit exemptions. These frequent changes in the tax system, initiated by the desire to alter investment spending, have not been confined to these two countries. Indeed, a review of the experience of other countries conjure up the feeling that, as Hall and Jorgenson (1967) pointed out,

"The effectiveness of tax policy in altering investment behavior is an article of faith among policymakers and economists."

In contrast, tax policy has not figured so prominently in the developing countries' programs of economic stabilization and investment control. Relative to other tools of economic policy, such as exchange rate, interest rate, and commercial policy, governments in developing countries have generally shied away from the use of tax devices to affect indirectly the investment behavior of the private sector. Instead, the basic strategy has depended on a mix of direct intervention in the financial and foreign exchange markets in order to influence the cost and availability of capital to the private sector and imposition of a tight regulatory framework over investment decision making, project selection, and appraisal. The costs of resource misallocation associated with this strategy are by now well known, perhaps most exemplified in the experience of Eastern European countries, but also in some developing countries such as Zimbabwe [Dailami and Walton (1989] and Egypt [Dailami and Dinh (1990)]. The shift in economic strategy from the past method of direct government intervention to a new strategy, dependent on policy-induced incentives, is currently a focus of the ongoing liberalization and privatization measures undertaken in most developing countries. A well-designed corporate tax system is an integral ingredient of such a new strategy.

We now discuss the incentive effect of capital income taxation on private business investment in the financial environment of developing countries. Diversity in tax codes, degree of inflation indexation, ownership structure of capital, legal definition of income, extent of capital market imperfections prevailing in the developing world, force us to consider only the most important aspects of the interactions between taxes, inflation and capital market

imperfections in developing countries.[20] The discussion is centered around two basic characteristics of developing countries that: (i) nominal rather than real income serves as the basis for both individual and business taxation of income from capital;[21] and (ii) capital markets are imperfect.

4.1 Capital Market Imperfections

Recognizing the role of capital market imperfections in the relationship between tax policy and business investment behavior represents only half of the story. The other half, involves identifying key aspects of such imperfections that bear upon the financing and investment decisions of firms on one hand, and the savings and asset portfolio allocation of investors on the other. To that end, it is useful to begin with the simplest case of a perfect capital market condition, which underlies the Modigliani-Miller (1963) theorem, or the Jorgenson investment model (1963). Under those conditions, the firm faces a perfectly elastic supply of capital, and the tax system is simplified to only a proportional tax on corporate income with deductible interest expenses. It is not difficult to see that, in this setting the firm should, in principle, rely entirely on debt to finance its investment, and, furthermore, that the primary channel through which tax policy can affect business investment spending is variation in the cost of capital [Hall and Jorgenson (1969, 1971)].[22]

The fact that firms in practice draw on both debt and equity to fund their investment and growth has been a source of considerable debate about the determinants of corporate capital structure in the field of corporate finance [see Gordon and Malkiel (1981); Kim (1982) for survey of literature.] The debate has, however, centered almost exclusively around the experience of a few industrial countries, namely, the U.S. and the U.K., where capital markets are

assumed to be perfect, where there is separate treatment of corporate and personal income, and where debt is treated more favorably than equity. Thus, in the case of corporate taxes in the U.S., distributions to debt securities are generally deductible against corporate income, whereas distributions against equity claims are not. The advantage this gives to debt may be partially, or under some circumstances totally, offset by the higher taxation of debt relative to equity at the personal level [Miller (1977)]. Within the framework established by this body of literature, optimal corporate financing decisions involve balancing the net tax benefits of borrowings, taking into account both corporate and personal taxation, against various leverage-related costs, such as bankruptcy costs, due to agency and asymmetric information problems or a loss of non-debt tax shields. [See DeAngelo and Masulis (1980), Kim (1982), and Ross (1985)]. Depending on the significance and magnitude of these costs and the relevant tax parameters, an optimal corporate capital structure (at the firm or the aggregate level) can be derived and used as a basis for analyzing the impact on firms' financing decisions of changes in tax structures, [see Bradley, Jarrell and Kim (1984); and Titman and Wessels (1988) for empirical results].

While there are important similarities in the prevailing tax codes in the developing countries and the U.S. in terms of corporate taxation, there are important differences in personal taxation. One such difference, for example, is the much lighter taxation of interest income relative to equity income in most developing countries relative to that in the U.S. Indeed, in most developing countries, interest incomes are either tax exempt or are treated more favorably. In Egypt, for instance, interest incomes on bank deposits with maturity less than two years are tax exempt. Also, in Korea, thanks to various exemptions, the effective maximum tax rate on interest income (including defense, education and

residence taxes) is 18 percent compared to 28 percent in the United States (after the tax reform of 1986). But income from stocks is taxed much more heavily in Korea; although capital gains are not subject to personal taxation there, dividend income is taxed at a rate as high as 70 percent for wealthy individuals, once the defense and residence taxes are taken into account.

To gain a quantitative perspective of the implications on the cost of funds to corporations of differential taxation of income from capital, Table 2 draws on estimate of tax rates for the Korean economy in 1986 to calculate the after tax return to investors of distribution of one unit of corporate earning. Thus, given an average effective corporate income tax rate of 29.6 percent in 1986,[23] the after-tax return to investors is seen from Table 2 to vary considerably, ranging from 0.95 -- if it were distributed as interest payment -- to 0.21 percent if it were distributed as dividend income to individuals at the high tax bracket. Corresponding to such wide variation in after tax returns on corporate earnings is the large differential in the cost of funds associated with firms' various forms of finance. Thus, as far as taxes are concerned, these estimates imply a hierarchical financing order, in which firms rely on debt first, then on retained earnings, and finally, as a last resort, on issuing new shares in the stock market. It is however, important to note that such a financing order depends singularly on the specific configuration of the tax rates in the Korean economy.[24] To the extent that it can be generalized to encompass the form of business finance in other countries depends on the following set of inequalities:

$$(1-m)\,(1-\tau) \leq (1-c)\,(1-\tau) \leq (1-t) \qquad (3)$$

where all symbols are defined in Table 2.

Table 2: Capital Income Taxation and Forms of Finance: Evidence from Korea

After-tax return on one unit of capital earning distributed as:

1.	Interest payments (borrowing)	$\frac{(1-\tau^*)}{(1-\tau)}(1-t)$	0.95
2.	Capital gains (retained earnings)	$(1-c)(1-\tau^*)$	0.704
3.	Dividend payments (share issues)		
	(a) Individuals	$(1-m_i)(1-\tau^*)$	0.21
	(b) Corporations	$(1-m_c)(1-\tau^*)$	0.429

where τ^* = average effective corporate income tax rate;
τ = statutory corporate income tax rate;
t = personal tax rate on interest income;
c = personal tax rate on capital gains
m_i = personal marginal tax rate on dividend income; and
m_c = corporate tax rate on dividend income.

Furthermore, in view of the fact that capital gains in most developing countries are exempt from taxation, the condition for debt to be the preferred source of company finance is simply seen from equation (3) that $\tau \geq t$, or, in other words, the corporate income tax rate exceeds the tax rate on interest income -- a condition that seems applicable to many developing countries.

Such an incentive towards debt financing generated by the tax system is, moreover, strongly reinforced by governments' pervasive intervention in the financial system.[25] Interventions such as directed credit allocation to favored sectors or firms through subsidized interest rates, artificial ceiling on rates, and bailouts of corporations in financial difficulties have generally resulted in keeping the before-tax cost of debt artificially low. The tax deductibility of nominal interest expenses at the corporate level has usually reinforced this advantage, particularly in inflationary environments. This explains, to a considerable degree, the reason why corporations in developing countries are so much more leveraged than their counterparts in the United States, or even Japan.[26] This also explains the low efficiency of investment evident in many developing countries. As an illustrative example, consider the results reported in Table 3 which show in the case of Egypt how a "standard" project yielding a low real return of even 4 percent per annum would be acceptable under the prevailing tax, depreciation, interest rate and inflation conditions in that country. Such conditions are furthermore representative of many other developing countries. The implications are resource misallocations and investment inefficiency.

Table 3: Real Return on a Standard Project

A. Parameters	
(1) Nominal rate of interest (average 1980-89)	8.16%
(2) Rate of inflation (average 1980-89)	16.24%
(3) Corporate income tax rate	40%
(4) Rate of economic depreciation	8%
(5) Depreciation schedule, 35% the first year of operations and straight line 10% per year thereafter.	
(6) Life-time of project	10 years with a scrap value of 25% of initial investment at the end of the ten years
B. The Result	
Real return on investment	-3.9%

5. INFLATION, TAXES AND INVESTMENT

In the absence of a fully indexed tax system, inflation affects the incentive to invest in fixed assets in a variety of ways. Even abstracting from its impact on companies' gross return to capital, there are two important channels through which inflation could affect the after-tax return to investors, both creditor and shareholders. First, the prevailing accounting procedure for determining capital consumption allowances may fail to reflect fully the impact on the real value of depreciable assets of inflation. Under the historical cost depreciation system, which is the most common among developing countries, accounting depreciation allowances are poor estimates for the market value of capital used up during the production process. As a result, taxable income is overstated, which imparts an upward bias in the effective tax rate on income

derived from fixed assets. Furthermore, this downward bias increases with the rate of inflation and is basically a function of the share of depreciable to total assets.

Second, inflation can lead to a lower effective tax rate because of tax deductibility of business interest payments. Given this provision, inflation lowers the real cost of debt to corporate borrowers because in inflationary environments, interest payments are partly payments of principal (see, for example, Cohn and Modigliani (1985)). Treating the inflationary component of interest payments, which is, in effect, a capital expenditure, as a current expense for tax purposes confers a subsidy in the form of tax savings to equity holders. This subsidy is fundamentally a function of two variables: (i) the corporation's leverage ratio, i.e. its debt-to-asset ratio; and (ii) the prevailing rate of inflation. Therefore, the higher the rate of inflation or the higher the firm's leverage ratio, the higher the value of this tax savings and thus, the lower the real cost of debt.

In determining the real cost of debt to the corporate sector, the inflation tax shield is of particular importance in developing countries where corporations rely heavily on debt capital particularly bank loans to finance their investment. And that is more so in high inflation countries of Latin America. In the case of Colombia, for instance, Dailami (1989) shows that without inflation tax shield, the average real cost of borrowing from financial institutions during 1980-1985 period would have been 13.25 percent instead of 3.7 percent.[27] In other words, in the absence of the inflation tax shield, the real cost of debt would have been prohibitively high: only highly profitable firms, i.e. those with real rate of return on capital exceeding 13.25 percent could have been able to invest in fixed assets.

The cost of debt is, of course, only one component of the overall cost of capital, which is the relevant factor for business investment decisions. For investment in fixed assets, i.e. plant, machinery, and equipment, the other main components of the cost of capital are: cost of equity, the acquisition price of capital, taxation, depreciation allowances, and the cost of asset decay. The analysis of how these factors may interact with inflation to influence the real cost of capital is not, however, straightforward in the context of developing countries. While inflation leads generally to decrease the real cost of debt, as argued above, it also has some offsetting effects through its influence on the real cost of equity, the acquisition price of capital goods and the real value of depreciation allowances. To what extent then, inflation may affect the cost of capital and thereby investment is an empirical question.

As a more direct examination of the implications on firms' investment behavior of the interaction between taxes and inflation, Dailami, (1990), focuses on the experience of Korea, and examines, firms' investment responses to the significant lowering of inflation in the early 1980s. Drawing on individual firm data, Dailami compares the investment behavior of a sample of 251 public corporations listed in the Korean stock exchange during two periods: (i) the high inflation of 1981-1982, and (ii) the low inflation of 1983-87, and advances the hypotheses that firms' investment behavior during the low inflation period, (1983-1987) should be negatively related to their initial leverage ratios (i.e. 1981-1982). The argument being that, the significant decline in the rate of inflation from an annual average of 14.2 percent during 1981-1982 period, to 3.7 percent in 1983-87 period should have led to increase firms' real cost of debt capital and such an increase should be proportional to the firms' initial leverage ratios. In other words, firms that were initially more indebted

relative to others should have experienced a higher increase in their cost of capital and should have been subsequently more severely affected, as they had to bear a higher real cost of debt service payments. Using a cross-sectional analysis, Dailami finds strong empirical evidence supporting his hypothesis, thereby establishing an important empirical link between firms' degree of indebtedness and their investment responses to the stabilization measures of early 1980s.[28] Furthermore, such a link is important in understanding the widely observed episodes of economic slowdown or recession which follow stabilization measures in most developing countries. It is, however, important to note that the link uncovered here between investment and disinflation is through the cost of capital effect rather than through the demand, or multiplier, effect which has been often emphasized in the literature. It, therefore calls for greater attention to be paid to the financial position of the companies in the design and implementation of stabilization measures.

6. CONCLUSION

This paper has shown the central role of fiscal policy in determining the size of private investment. Since most developing countries have restricted access to foreign financing, there is direct competition between the public and private sector for limited financial resources. High fiscal deficits pre-empt these for the public sector and exclude the private sector from them. In a regime of rationed credit smaller firms get hurt more than the larger ones. The manner in which expenditure cuts are made also matters. Expenditure restructuring is necessary to protect and in some cases even expand public investments which are complementary to the private sector. More importantly

expenditure restructuring is necessary in order to avoid physical crowding out of private firms from product and factor markets.

With reduced fiscal deficits and financial liberalization, market forces will play a larger role in the volume and allocation of private investment. Tax policy will play an increasingly important role in influencing market investment decisions. This requires, per force, a better understanding and a greater appreciation of the nature and extent of various institutional, financial and tax factors which have led to such a high degree of corporate indebtedness in developing countries. These factors have included: (i) a tax system which has generally favored debt to equity both at corporate and personal level; (ii) inadequate accounting for inflation in calculation of net corporate income, particularly due to poor adjustment for depreciation allowances, and (iii) governments' interest rate and direct credit allocation policies which have relied on banking system to further their industrialization and development objectives. This paper has highlighted the main elements of these factors that must be incorporated in determining the cost of capital to firms, and the after-tax rate of return to investors.

While this paper has pointed to rethinking in several policy areas of vital importance for the revival of private investment, other important areas which we have not discussed much are deregulation and privatisation of public enterprises. Deregulation includes the removal of a vast array of controls, permits and licensing procedures common to many developing countries; often leading legitimate private business into the underground or parallel economy.[29] While entrepreneurs can thrive in the parallel economy there are

limits. The "illegality" of the parallel economy and the constant threat of state reprisal are not conducive to consolidated capital accumulation.

Although ongoing reforms clear the path for a revival of private investment, the debt overhang remains an obstacle. High debt service ratios are a signal to both domestic and foreign investors of the likelihood of policy reversals. Countries, even ones which have undergone thorough reforms, remain very vulnerable to external shocks even possibly temporary ones such as the recent oil price hikes. The need to service large debt burdens enhances this vulnerability and makes private investors shy away from long-term "irreversible" investments because of their fear that policy changes will not be sustained.

ENDNOTES

1. In economies in which interest rates are unregulated and credit is not allocated the relevant variable is real interest rates. In financially repressed economies the share of credit going to the private sector is the relevant variable.

2. For a more detailed discussion see Buiter (1988), Anand and van Wijnbergen (1989) and Easterly (1989).

3. The empirical literature on the effect of interest rates on private savings is vast and inconclusive.

4. Assuming basically closed capital markets or at least markets where for a number of reasons foreign financing was not a realistic option.

5. See van Wijnbergen (1983) and Dailami (1988) for elaboration and further detail.

6. Sharrif's curiously used both the fiscal deficit and a credit variable in his equations although the two would be inter-related.

7. An important caveat here is that none of these studies test for causality. Intuitively, it is unlikely that the causality goes the other way, i.e. from private investment to credit to the private sector.

8. A compensating balance is the share of a loan held in deposit by a commercial bank. The effective lending rate is then $(r_L - r_d \cdot b)/(1 - b)$, where r_L is the nominal lending rate, r_d is the nominal deposit rate, and b is the compensating balance.

9. The compensating balances were calculated from the balance sheets of the commercial banks.

10. Assuming insignificant foreign financing for the private sector.

11. We have avoided here the more interesting but less tractable issue of whether the public sector should have borne the entire burden of adjustment. In countries where the private sector had benefitted in the phase of fiscal expansion, and had secured foreign financing through government guarantees, it should have borne part of the subsequent adjustment. The problem was that the beneficiaries of the earlier expansion were not the ones who paid for the subsequent retrenchment.

12. See Krugman and Taylor (1978) and a recent survey in Lizondo and Montiel (1989).

13. Some ascribe a negative effect of stabilization on private investment can also arise from the increased uncertainty about policy changes once the government embarks on a program. The opposite is also possible if the inception of a reform program signals that the

government is willing to take action, then uncertainty can be reduced and credibility enhanced.

14. Assuming no effect of a devaluation on private consumption.

15. There can be much higher benefits to the private sector if public expenditure on maintenance improves the efficiency of say, power plants or roads -- instead of adding more of them.

16. At the outset it is important to point that there are a number of studies which show very negative effects from the public sector to the economy. Balassa (1989) using cross-country econometric results shows a very negative relationship between public and private investment. Khan and Reinhart (1990) estimate a cross-country growth equation for 24 countries which includes public and private investment separately. The results indicate that public investment has no effect on growth. One interpretation of their result could be that public investment has no direct growth effect but only improves the marginal rate of return to private capital. There could also be strong multi-collinearity between public and private investment which they do not correct for.

17. There may also be common trends in the economy. As GNP rises, both public and private investment increase.

18. Public infrastructure investment includes investments in power, telecommunication, transport, health and education.

19. For detailed analysis of these tax changes and their implications for business investment in the U.S. see Brown (1955); Chase (1962), Hall and Jorgenson (1967 and 1971); Bosworth (1985).

20. The issue of equity is covered by Cornia and Stewart's study and tax neutrality as well as other proposals to reform tax structures in developing countries, are covered by Thirsk's study included in this volume.

21. The Israeli tax reform of 1982, provide an important case of adapting to an inflation-adjusted income tax system. [See Bronfeld and Swary (1985) for details.]

22. Within this context, attention has traditionally been focused on the implications of the cost of capital changes in the investment tax credit or depreciation rules [Hall and Jorgenson (1967, 1969); Bradford (1980); Auerbach and Jorgenson (1980)]. In that sense, the interaction between taxes and cost of funds, i.e., interest rate and cost of equity, has been ignored.

23. This is estimated by taking a weighted average of observed effective tax rates of 251 non-financial public companies listed in the Korea Stock Exchange in 1986. Figure 3 in the Appendix shows the distribution of the effective tax rate across the firms in the sample. It thus can be seen that about 19% of companies in that year paid no

corporate income tax, and the majority of them paid taxes close to the statutory tax rate of 39.6.

24. Note that this particular financial hierarchy, as implied by the Korean tax code, is different from the traditional "pecking order" [Donaldson (1961); Myers (1985)], where retained earnings are preferred to risky debt, which are, in turn, new share issues. One plausible explanation is that the risk of debt financing to the corporate sector is significantly reduced in the developing countries through various implicit or explicit government guarantee scheme and the frequent bailout of companies in financial distress.

25. The pervasive nature of governments' interventions in the financial systems of developing countries has, of course, been well recognized and documented (see, in particular, the 1989 World Development Report). Following the classic work of McKinnon (1973) and Shaw (1973) a large body of literature has evolved, highlighting the nature and extent of such interventions, particularly in the form of directed credit allocation and controlled interest rates and their implications for growth, investment and efficiency. Thus, Bruno (1979), Buffie (1984) and van Wijnbergen (1983) develop macro models of financial repression; Gelb (1989) provides a cross-country study of the aggregate relationships between real interest rates, investment, growth and efficiency for a sample of large developing countries; and Dailami (1988) analyzes the impact of interest rate controls on corporate real investment in Korea.

26. Estimates provided by Kim (1989a), for instance, show that the average equity ratio for Korean listed corporations during 1977-1986 is about 16 percent, compared to corresponding values of 40 percent for Japanese corporations, and 50 percent for U.S. corporations.

27. It needs also to be noted that the inflation tax shield has been very important in encouraging corporations in developing countries to rely so heavily on debt capital. Concern with high corporate leverage has motivated some governments to eliminate or gradually phase out the tax deductibility of the inflationary component of interest payments. Under the Colombian Tax Reform of 1986, for instance, the inflationary component of business interest payments will be gradually phased out, such that by 1996 only real interest payments will be eligible for tax deduction (see Dailami (1989) for details).

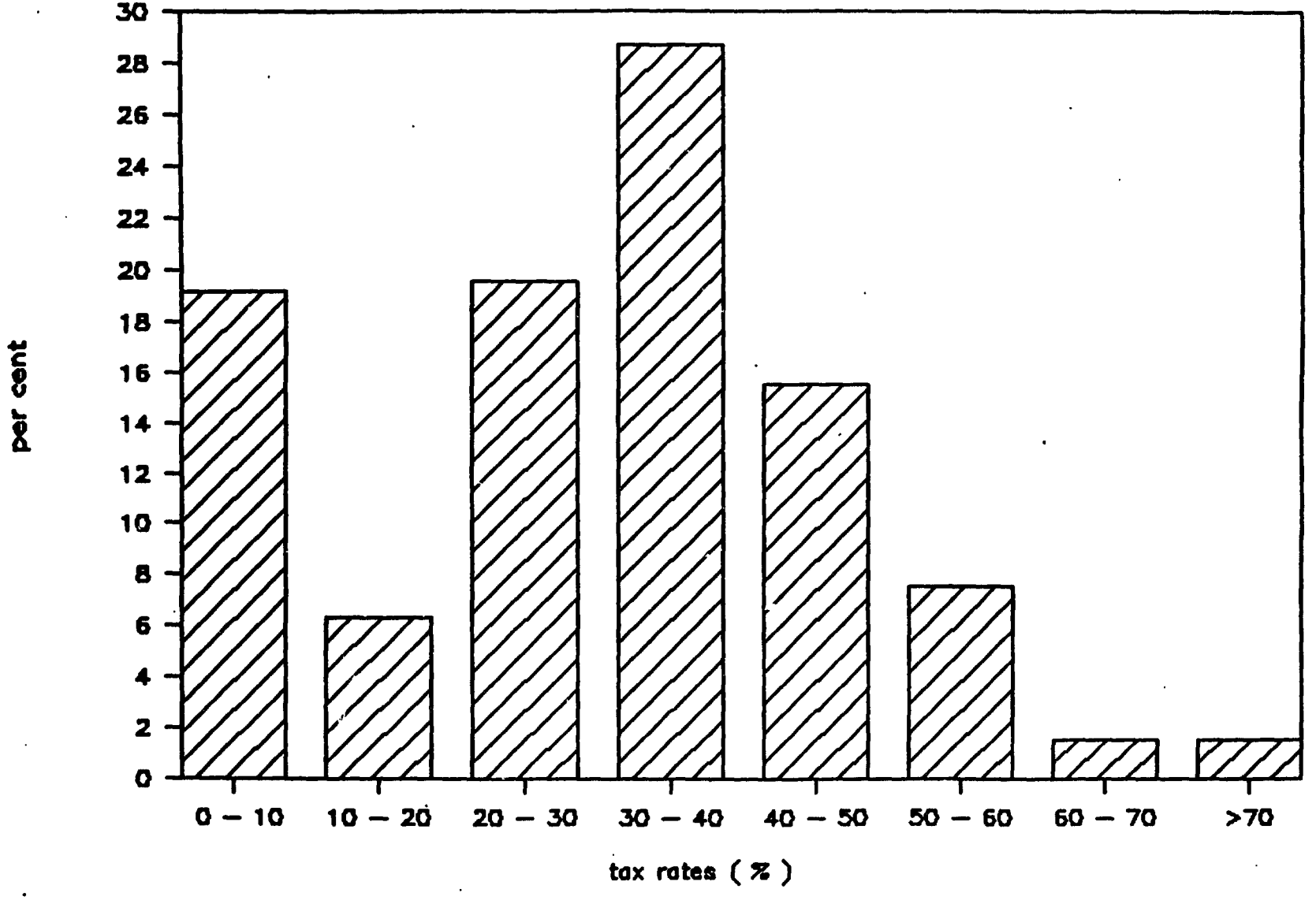
28. Furthermore, Dailami finds that the correlation coefficient between firms investment ratios (i.e. the ratio of fixed investment to total assets) in the low and high inflation periods was negative and statistically significant. Such finding is suggestive of an important degree of shift in the investment behavior of firms in Korea as the result of the disinflation of early 1980s.

29. For empirical evidence on the costs of regulation in Peru see de Soto (1990). Similar evidence, though of a more anecdotal nature can be found in many other countries, see for instance, Dailami, and Walton (1989), for the case of Zimbabwe.

Figure 3

Firm Distribution According to Observed Effective Corporate Tax Rate in 1986

(Sample of 251 Korean Companies)



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